

Engineering/Technology Educators of Indiana

78th Annual Conference “The Heart of STEM Education”

November 1, 2009 & November 2, 2009

Indianapolis Embassy Suites North

3912 Vincennes Road

Indianapolis, Indiana 46268



Program of Events

Scientists and Mathematicians calculated how to get to the Moon

Engineers and Technicians got us there and back

The Engineering/Technology Educators is an Affiliate of the International Technology Education Association (ITEA).
Membership in ITEA is encouraged.



A word or two from the ETEI President:

Welcome to the 78th Annual State Conference for Engineering and Technology Teachers of our state. My memories of this conference give away my age because I first think of French Lick with the great hotel and Larry Bird Boulevard across the street. Next, those fresh spring days in the rolling hills of Brown County and downtown Nashville, Indiana. Visits to Fort Wayne, Columbus and the ITEA Conference in Indianapolis are still images in my mind. My family tried to make these conferences a family affair in those days and I believe that is the major reason why these memories are so vivid.

With these family memories also comes the thought of all the professional development I attained at the conferences and for the most part did not even realize it at the time. Connecting with professionals in our discipline from around the state like Jim Kirkwood, Elmer Ciancone, Edgar Wagner, Ethan Svendsen, Kenneth Poucher, Eldon Rebhorn or Richard Henak was really an experience that has been extremely valuable during my career in education. Coming home and discussing the tricks of our profession with District 1 members like Joe Mrak, Ed Paloncy, Calvin Chandler, Dave Watson, Joe Heuer, Bert Poi, or Bob Kussy was not only educational but very entertaining in most cases. Have there been changes over the years? Sure, no doubt about that. The whole scope of education has changed in many ways yet when I think about it – I am still working in a lab with a group of kids trying to pass what technological knowledge I have attained thru my studies and background to these students. Personally, I feel the technical information and hands-on experiences that I try to pass on today are as valuable to my students as it was thirty years ago if not more so.

Special thanks to Doug Dillon and Kara Harris for their tireless work to make this conference what it is. Past-President Steve Florence gave me a foundation to work with that has made this all fall into place. Also, thanks to all members of the Executive Committee who have been there at all times willing to give their time and experience.

As we gather for this 78th meeting, and place emphasis on the STEM initiatives, I would like to remind all attendees that we are not void of leaders in our field of Engineering and Technology. When I look around and see the work of Ball State's Rich Seymour, Purdue's George Rogers, Indiana State's Kara Harris, PLTW's Kevin Taylor, ITEA President Gary Wynn (Greenfield Central H.S.) and the Department of Education's Mike Fitzgerald it makes me realize that there is an extension of those great memories going on today. Indiana is a national leader in engineering and technology education. This conference is an extension of all those years of work done by our predecessors and hopefully everyone attending finds something to take home and make their teaching experience more gratifying and beneficial to the students they teach.

Finally, a great deal of gratitude to my wife Donna for the patience and support she shows on a daily basis. As an educator herself she has been a great partner and has proofed many of my ideas. I am also blessed to have my daughter Jeanette and son Garrett involved in this great profession and have receive great guidance from their fresh views of current practices in the field of education. Thanks.

Yours in Technology and Engineering,

Gary Gray





Doug Dillion 1st Vice President

Known for his creative curriculum and involved teaching style, Doug Dillion is joined by fewer than 600 teachers nationally as a recipient of the Walt Disney Corp's Disney Teacher of the Year award winner for 2006. He is among only 12 teachers from Indiana to be selected for this honor. Since graduating from ISU in 1993 with an industrial technology education degree, Dillion has taught sixth through eighth grade technology courses at Honey Creek Middle School. In addition to his teaching responsibilities, he supervises lab assistants and coordinates the peer tutoring program in the technology lab. He also serves as the advisor for the Technology Student Association and shows his school spirit by lending his voice as master of ceremonies for school pep sessions. Outside the classroom, Dillion continues to develop new ways of engaging students by coordinating the Tech Town USA curriculum which involves authoring curricula texts and supervising student displays at state and national industry related events, authoring parts of the Technology Education Curriculum Crosswalks Activities standards for middle school students. He was also appointed the middle level education representative to the technology education curriculum committee for the Indiana Department of Education. In 2005, Dillion's programs were selected by the International Technology Education Association for the National Program Excellence Award. He was also the National Association of Home Builders National Associate of the Year nominee and winner of the Don C. Cassidy Sr. Associate of the Year for Indiana, and Home Builders Association of Greater Terre Haute Jack Dempsey Associate of the Year Award recipient. Dillion has also received the Technology Educators of Indiana State Program Excellence and John E. Gray Meritorious Teaching awards.



Dr. Kara Harris 2nd Vice President

Dr. Harris has been actively involved in the profession since graduating from Indiana State University. After obtaining her teaching license she taught technology education to students in grades one through twelve in Indiana and middle school in South Carolina. Recruitment and retention of technology education teachers is of great interest to Kara. She has completed various research projects and presentation in the area of recruitment. Dr. Harris is presently an assistant professor at Indiana State University where she coordinated the Technology and Engineering Education Program. In addition, she also serves as a Project Lead the Way affiliate professor on Introduction to Engineering Design. Prior to her appointment at Indiana State, she was an assistant professor at Purdue University in the Engineering/Technology Education Program. Kara was selected as TECA Advisor of the Year in 2006 and was recognized as the outstanding non-tenured faculty member from the College of Technology at Purdue University and received the Silvius-Wolanski Outstanding Young Industrial Educator Award in 2007. A native of Southern Indiana, Dr. Harris enjoys spending time with family and friends. She believes very strongly in the benefits of professional organizations for all technology educators and that people of all ages benefit from technological literacy.

2009 ETEI Executive Committee

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Welcome! Features of this conference include professional development sessions, hands-on sessions, networking opportunities, vendors, and much more!



Schedule for Sunday November 1, 2009

11:00-3:00 **E/TEI Conference Registration Opens (Hotel Lobby)**

12:00-12:45 **E/TEI General Session – “The Heart of STEM Education”.** Welcome by E/TEI President, Gary Gray
Barcelona A-D Room Featured speaker, Indiana Superintendent of Public Instruction, Dr. Tony Bennett

On January 12th 2009, Dr. Tony Bennett was sworn in as Indiana Superintendent of Public instruction and immediately began creating a Department of Education focused on student learning and implementing his vision that “the academic achievement and career preparation of all Indiana students will be the best in the United States and on par with the most competitive countries in the world.”



Bennett’s aggressive goals include creating and promoting a statewide culture of academic excellence in which at least 90 percent of student pass both Math and English/Language Arts sections of ISTEP+ and End-of Course Assessments; 25 percent of all graduates receive a score of 3,4 or 5 on at least one Advanced Placement exam, a 4 or higher on an International Baccalaureate exam, or receive the equivalent of 3 semester hours of college credit during their high school years; and 90 percent of students graduate from high school. Just four months into his term, the Indiana Business Journal said Dr. Bennett is “shaking things up” and “pushing hard for change.”

For more than 20 years, Bennett has served Indiana’s school children and families as a teacher, coach and administrator, helping ensure Indiana’s students receive the first-class education they deserve. After nine years in the classroom as a science teacher, Dr. Bennett began his career in administration, quickly developing a reputation as a gifted leader with a talent for school management, strategic planning and efficient budgeting.

Dr. Bennett received his Ed.D. and Indiana Superintendent’s License from Spalding University. He earned his Certification in Secondary Administration and Supervision, a Master of Science in Secondary education, and a Bachelor of Science in Secondary Education from Indiana University Southeast.

A native of Clark County, Indiana, Tony now lives in Noblesville with his wife Tina, a former high school principal. He has four adult children and one grandchild.

12:55-1:20 **Curriculum Committee Updates.** Presenter: Dr. Richard Seymour
Barcelona A-D Room

1:30-2:00 **Conference Planning and Updates.** Presenter: Mr. Doug Dillion

Barcelona A-D Room
Sunday continued.....

Special Sessions

2:15-3:15 Session 1: **Curriculum Committee Meeting.** Moderator: Dr. Richard Seymour
Barcelona A

Session 2: **Different Curriculum Approaches to Teaching Advanced Manufacturing.** A discussion on different curriculum approaches being used as the secondary level to teach advanced manufacturing. Information on AME 21, MSSC, and Independent programs will be discussed. Presenter: Marquis Songer Host- Mr. Doug Dillion
Barcelona B

Session 3: **New Tech High Schools: Multiple Approaches for Successful Results.** Learn about New Tech High Schools, how they work, advantages/disadvantages, and how to get involved. Presenter: Mr. Rob Weisbach Host- Mr. Jim Genovese
Barcelona C

Session 4: **Project Lead the Way Gateway to Technology Help Session.** Looking for troubleshooting techniques or how-to answers to help you in your Gateway Classroom? This hands-on session will focus on answering your questions to better help you teach your students. **ALL PARTICIPANTS MUST BRING THEIR PLTW LAPTOP TO PARTICIPATE. 2 Hour Session**—Presenter: Dr. George Rogers Host- Mr. Randy McGriff
Barcelona D

Session 5: **Project Lead the Digital Electronics Help Session.** Looking for troubleshooting techniques or how-to answers to help you in your Digital Electronics Classroom? This hands-on session will focus on answering your questions to better help you teach your students. **ALL PARTICIPANTS MUST BRING THEIR PLTW LAPTOP TO PARTICIPATE. 2 Hour Session**—Presenter: Mr. Larry Grigg Host- Mr. Brad Moore
Madrid Room

3:30-4:30 Session 1: **The Indiana STEM Network** —This presentation will center itself on the network that has been created in Indiana to assist teachers in connecting the four disciplines which are interconnected in today's technological world. Presenter: Mr. Bill Walker Host- Mr. Gary Gray
Barcelona A

Session 2: **Alternative Energy.** ECI Wind and Solar is an East Central Indiana based renewable Energy-service Company. Their goal is to provide consumers with superb education with unparalleled service and sales of renewable energy products. ECI Wind and Solar beginnings were around the turn of the century when the founders needed to power their remote home sites. After a few years of study the company felt confident enough to purchase and install a small off the grid system in a remote cabin. For the first time in history there was power at the ECI Wind and Solar Home. How can teachers use ECI Wind and Solar information in the classroom. Presenter: Mr. Eric Cotton Host- Mr. Steve Florence
Barcelona B-C

Session 3: **Project Lead the Way Gateway to Technology Help Session**—Continued
Barcelona D

Session 4: **Project Lead the Digital Electronics Help Session**—Continued
Madrid Room

4:45-5:45 **Technology and Engineering Education Teacher Educator Meeting**—Hosted by Indiana State University
Madrid Room

6:00-10:00 **Food, Fun, and Fellowship**—Join E/TEI for a group evening of events that include, food, fun and fellowship,. Gather in the hotel **Atrium** for pizza and a movie or pizza and social hour. Pizza will be provided by E/TEI

Schedule for Monday November 2, 2009

7:30-Noon **Conference Registration Open** (hotel lobby)

Special Sessions

8:00-9:00 Session 1—**Funding Your Technology and Engineering Education Program.** If there is one constant in technology it is change! We work in a field that is constantly changing; however, the change doesn't only happen in the classroom. This presentation will focus on changes that have occurred in Technology and Engineering Education and Career and Technical Education courses in Indiana and funding that can support them. Presenter: Mr. Doug Dillion Host- Mr. Jeff Killian

Barcelona A

Session 2—**Getting High School and Middle School Students Involved in Co and Extra-Curricular STEM Activities.** Looking for a way to introduce various programs to your school and students? Session will focus on how-to implement many of the most popular co and extra-curricular activities today. Activities include FIRST Robotics, Lego League, VEX robotics, IMSTEa, and more! Presenter Mr. Steve Florence Host- Ms. Tina Hayden

Barcelona B

Session 3—**Going Green in the Middle School: Approaches for Creating a Green Curriculum at the Middle School Level.** This session will focus on how teachers can use ordinary classroom consumables and equipment to introduce "going green" to middle school students. Presenter: Mr. C.J. Shields Host- Mr. Brad Moore

Barcelona C

Session 4—**Project Lead the Introduction to Engineering Design Help Session.** Looking for troubleshooting techniques or how-to answers to help you in your Introduction to Engineering Design Classroom? This hands-on session will focus on answering your questions to better help you teach your students. **ALL PARTICIPANTS MUST BRING THEIR PLTW LAPTOP TO PARTICIPATE. 2 Hour Session** Presenter: Ms. Kelly McGregor Host- Mr. Randy McGriff

Madrid Room

Session 5: **Fluid Power for the Classroom.** An interactive curriculum that utilizes both hands on experience and web based lessons for the middle and high school classrooms. The Portable Fluid Power Demonstrator (PFPD) allows students to work with pneumatic and hydraulic systems in addition to introducing them electronic controls. The web based materials provide teachers instruction manuals and videos, student lessons, and extra resources related to fluid power. The scope of this project was to design and build a fluid power demonstration kit and accompanying curriculum to attract middle and high school students to science and engineering majors. It fits many school programs due to its low cost, portability and low resource requirements. Presenter: Mr. Brian Bettag Host- Mr. Doug Hunt

Barcelona D

9:00 – 3:00 Vendor Area Open from 9:00a.m. – 3:00p.m. Please visit In the Atrium

9:15-10:15 Session 1—**Administrator and Guidance Guide to Technology and Engineering Education Programs.** This informative session will cover the basics of what encompasses technology and engineering education including funding, curriculum, job outlook, dual credit, and post-secondary opportunities for your students. Presenters: Mr. Gary Wynn and Mr. Mike Fitzgerald Host- Mr. Jim Genovese

Barcelona A

Monday continued.....

Session 2—**DATS Cool!** Looking for a way to incorporate STEM at the middle school level in a way that gets students excited, engaged, and eager to learn? Learn how to get involved with Project DATS (Discovering Aviation Through STEM). DATS will provide a technology rich learning environment, which allows students to encounter technology on an experiential level through the use of model aircrafts and flying.
Presenter: Dr. Richard Baker Host- Dr. Kara Harris

Session 3—**Teacher, What's your Style?** The individual classroom teacher is the most important factor affecting student learning. Participants will gain an understanding of the importance of how students learn through this hands-on session on, how teacher's teaching style impacts various student learning styles, meta-cognition, and reflective practice. As a result, educators can adequately adapt their teaching practices to reach every student thus creating student success.
Presenter: Dr. Steve McCaskey Host- Ms. Virginia King

Session 4—**Project Lead the Way "Introduction to Engineering Design" Help Session—Continued**
Madrid Room

10:30-11:30 Session 1—**Certifying Your Project Lead the Way Program.** High School Project Lead the Way programs must be certified by the second year in the program and re-certified every five years after. This process requires schools to demonstrate that they meet PLTW's quality standards in professional development of teachers and counselors; the implementation of curriculum using required equipment and software; the formation of a Partnership Team, and several other criteria. This session will help to guide you through the "how to's" of the certification process.
Presenters Ms. Rene Bailey and Mr. Don Kunkle Host- Mr. Ken Amos

Session 2—**TECA Student Session: Student Teaching and Living to Tell About It!** Ever wonder what awaits you during your student teaching semester? In this session student teachers from Indiana State University, Purdue University, and Ball State University will share some of the tips, tricks, and pitfalls that will help you to have a successful student teaching experience. Moderator: Dr. Kara Harris

Session 3—**How Can Being a TREKie and Getting FIT Benefit Your Students? Getting Your Students Involved in Tech TREK and Females in Technology.** Looking for university outreach programs that will complement and supplement your curriculum through hands-on and problem-solving activities? This session will give information on how you and your students can get involved in two very different programs at Indiana State University that focus on technology/engineering education and getting females involved in technology/engineering programs.
Presenter: Ms. Bev Bitzeqiao Host- Mr. Doug Hunt

Session 4—**Integrating Math into the STEM Classroom. Looking for ways to integrate math into your classroom in such a way students "get it"?** This session will focus on different approaches for math integration into the STEM classroom to boost student success.
Presented By: Vigo County School Corporation Host- Mr. Brian Bettag

11:45-12:15 **Department of Education Engineering-Technology Education Update**
Madrid Room Presenter: Mr. Mike Fitzgerald Host- Mr. Jim Genovese

Monday continued.....

12:30-1:45

E/TEI Awards Luncheon —Join us for lunch and awards session in the conference hotel.

Barcelona A-D Room

Guest speaker, Dr. Kraig Olejniczak, Dean, College of Engineering, Valparaiso University.
Awards Chairman – Mr. Doug Hunt *Lunch is included in the price of registration.*

Kraig Joseph Olejniczak, born on February 6, 1965, in Green Bay, Wisconsin, assumed leadership of Valparaiso University's College of Engineering in August 2002 after serving on the University of Arkansas (Fayetteville, AR) faculty for the previous 11 years. He earned his bachelor's degree in electrical engineering from Valparaiso University in 1987, and master's and doctor of philosophy degrees from Purdue University in 1988 and 1991, respectively. In 1991, he joined the Department of Electrical Engineering at the University of Arkansas as an assistant professor. In 1995 Dr. Olejniczak was named associate professor, and in 2000, professor of electrical engineering. He led the university's High Density Electronics Center's effort in the power electronic miniaturization and packaging thrust area.



Dr. Olejniczak has been awarded the Institute of Electrical and Electronics Engineers (IEEE) Industry Applications Society's Power Electronics Devices and Components Committee Prize Paper Award in 1998 for his work on the use of diamond in multi-chip power module-based induction motor drives, and the IEEE Power Engineering Society's Power Engineering Education Committee's Prize Paper Award in 2001 for his work in collaborative distance learning in power engineering. In addition, Dr. Olejniczak has been the recipient of: the National Science Foundation's Research Initiation Award (1994), the Department of Electrical Engineering's Halliburton Outstanding Researcher Award (1994), the Arkansas Academy of Electrical Engineering Outstanding Faculty Award (1995 and 1999), the College of Engineering's Phillips Petroleum Outstanding Faculty Award (1996), and the Department of Electrical Engineering's Texas Instruments Outstanding Researcher Award (1997). In 1998, he received the IEEE Power Engineering Society's Walter Fee Award for the outstanding young power engineer in the society under the age of 35. Dr. Olejniczak has received the 2009 Indiana Society of Professional Engineers Engineer of the Year Award. He is a member of Tau Beta Pi, Eta Kappa Nu and Theta Chi. He is a licensed professional engineer in the state of Arkansas.

Dr. Olejniczak is founder and chairman of the board for Arkansas Power Electronics International, Inc., a small high-tech business which specializes in high-temperature power electronics systems using silicon carbide semiconductor technology. Their work in minimal form factor, high-temperature (i.e., > 250 °C) variable-speed motor drives has recently been nominated by Sandia National Laboratory for a 2009 R&D 100 Award.

Dr. Olejniczak has hosted PLTW student workshops at Valparaiso University for the past several years and is actively engaged in the pursuit of technical knowledge for all high school students.

Monday continued.....

Special Sessions

2:00-3:00

Barcelona A

Session 1—**Aero Lab Hands-On Session.** Aero Lab is a hands-on, inquiry-based program in conceptual physics, math and technology for middle school through 9th grade students. Students build simple flying machines to teach forces, motion, practice math skills and technology. This is multi-disciplinary labs program meets many standards. Presenter: Mr. Jack Frost Host- Ms. Virginia King

Session 2—**VEX Robotics for Your Classroom.** Indiana has been quietly leading the country in robotic training, education and competition due to its far-reaching educational structure and history of support for robotics educators and competitors from the state government. The robotics educators in the state have already established a great model of collaboration between high schools, their teachers and students, and the community college with the formation and support of the internationally recognized Indiana Robotics Educators (IRE) grant project-now enjoying its fifth year of success. Robotics is quickly becoming the tool of choice for teaching engineering and design principles across many disciplines. Learn more about how you and your students can become more involved with VEX robotics at this informational presentation. Presenter: Dan Ward Host- Mr. Randy McGriff

Barcelona B

Session 3—**Creating Competitive Events for Your Classroom.** This session will focus on the use of contests, group challenges, and formal competitive events as a means of introducing technological and engineering concepts. Details related to organizing and conducting fair, informative, and worthwhile events will be covered. Presenter: Dr. Richard Seymour Host- Mr. Brad Moore

Barcelona C

Session 4—**Experiences with Lily Endowment Teacher Creativity Fellowships.** This session will give a first-hand perspective from a technology/engineering education teacher on how to apply, get involved, and what to expect when working with Lily Endowment Teacher Creativity Fellowships. Presenter: Mr. Doug Hunt Host- Mr. Brian Bettag

3:15-5:00

Barcelona A-D

E/TEI Business Meeting—Conclusion of the 78th Annual E/TEI conference.

Elections of E/TEI officers and E/TEI business will be discussed and voted upon. Please plan to attend. Your vote and professional input is always needed as we collaboratively work to advance excellence and support for your students, community, profession, and YOU!

Mission Statement

The Engineering/Technology Educators of Indiana are dedicated to promoting the study of technological and engineering concepts among the K-16 population in Indiana though.....

- Professional development avenues such as workshops, conferences, and other educational opportunities;
- Enhanced communication among those involved in teaching and learning about technology, innovation, design, and engineering;
- Advocacy efforts that support the profession and association;

- Social and recreational activities that contribute to a focused, energized membership to serve the educational needs of Indiana educators.

Support our Conference VENDORS

Notes:

